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Although it is widely accepted that early childhood is the optimal time to begin educational intervention, there does not seem to be an agreement on the specific kinds of interventions. For the disadvantaged child, however, it seems that intervention in infancy and very early childhood is especially indicated. This summary and literature review notes the problems concerned with the long-range goals of early childhood education, the stability of early learning, and the problems of timing the educational interventions. (NH)

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A Summary of
THE PROBLEM OF TIMING IN PRESCHOOL EDUCATION*

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Halbert B. Robinson†

There is a sudden enthusiasm in this country for programs of educational intervention in early childhood, and never before in the history of psychological investigation has there been such an opportunity to translate theory into action—especially for children from that segment of society labeled "culturally deprived." Pushed by a current national trend and by sizable federal appropriations, developmental psychologists and educators are being asked to guide extensive and expensive programs for young children. They are being forced to consider many important questions related to the problems of early learning and teaching, an area in which there have been few research studies and in which due caution is essential.

It has long been obvious that infants begin learning very early, and it has been equally obvious that it is possible to exert some control over what they learn. Most of the early theorists who considered the problem of cognitive development during childhood came to the conclusion that learning tends to follow a more or less immutable and predictable pattern, and that the rate of development is determined by the more or less permanently fixed intellectual level of the child.[1,2,3,4] During the past few years, however, many child development specialists have paid increasing attention to the role of experience as an important factor in intellectual development. The time when earliest human learning is thought to occur has tentatively even been pushed back to the prenatal period.[5] Neonates have been demonstrated to exhibit considerable learning potential.[6,7,8] Toddlers have been taught successfully to read.[9,10]

Despite some evidence to the contrary, reviews of the effects of a variety of environmental conditions on intellectual development have tended to show that enrichment, as in a nursery school, is propitious for intellectual growth.[9,11,12,13,14] It is, however, probably important to point out here that the new enthusiasm concerning the significance of experience as a determinant of intellectual development is based somewhat more on our equalitarian personal convictions than on our knowledge of what has been conclusively demonstrated. There is also impressive evidence that hereditary variables are important,[15,16,17,18,19] and that nature and nurture must be viewed as interacting at every stage of development.

Problems Concerned with Early Childhood Education

Prompted by the new conviction that young children can learn much more than they are commonly being taught today, many workers in this area have proposed early childhood education as a potent force to bring about significant changes in the intellectual behavior of our youth. Of even greater popularity has been the notion that concerted preschool programs can save many children from the cycles of poverty, despair, and ignorance in which their families have been caught for generations. In other words, the notion that young children can be taught has been translated into the notion that they should be taught. There are, however, several important unknowns in this assertion; and it seems to be of utmost importance to consider at least their existence and to suggest some general strategies for research.

Long-Range Goals of Early Education

Surely, all will agree that it is the end product of the educative process, the adolescent and the mature adult, to whom we must look in order to formulate adequately the goals of education. And these distant goals must always be kept in mind as we devise aims and methods for the preschool years.

It is possible that many teaching methods which bring about early mastery are not best suited for long/range excellence. The major goal of reading instruction, for example, which is to read silently at the fastest rate consistent with a high level of comprehension, is probably not achieved by teaching methods which emphasize reading aloud. It seems clear also that one of the primary reasons such teaching techniques have not been criticized more often is that practical goals for the lower grades are formulated in terms of achievement during each year of instruction rather than in terms of progress toward the attainment of the final goals of the entire reading program. Examples abound and have led to reforms in the teaching of mathematics, foreign languages, typing, and so forth.

The significance of this point is that it seems entirely possible that unless constant attention is given to the ultimate goal of each teaching program, identical problems with some of the teaching techniques for preschool programs will develop. If we take seriously the necessity for relating teaching practices at every level to distant goals, the research strategies will have to be longitudinal. It is extremely important that we begin now to establish a firm research basis for action programs which are already underway and for ones which are being planned.

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Stability of Early Learning

There is remarkably little data pertaining to the question of the long-range stability of early educational experiences. It is, nevertheless, important that children who are given specialized preschool experience be followed, at least, through the elementary years to determine the effects of the programs on intellectual development.

One of the most dramatic follow-up studies ever reported is currently being completed by Skeels.[20] Skeels and Dye[21] followed 13 infants who were moved from the minimally stimulating environment of an orphanage nursery to a residential center for the mentally retarded, in which they were given a great deal of stimulation, attention, and affection. The children were compared to 12 control children who stayed in the orphanage. Skeels[20] demonstrated that young children removed from such environments early enough developed quite well while those who were not rescued developed very poorly. There are, however, other observations which cast some doubt on the permanence or irreversibility of the effects of infant deprivation.[22,23,24]

Kirk[25] studied children living in the community and in institutions, some of whom were given special preschool experience and some of whom were not. The overall effects of the preschool experience were positive, though after a year of school, the control children who were living in the community tended to catch up with the experimental group. This was not true, however, of the community children from very deprived homes or from the institutional group. For them, the preschool experience provided a special advantage which was maintained in contrast with the controls.

A follow-up study[26] of children who were reading when they entered first grade suggested very tentatively that children whose parents deliberately set out to tutor them were reading more effectively on entry into first grade than were those who had spontaneously[14] involved their parents in helping them. The deliberately tutored children read slightly less well than the spontaneous readers at the end of third grade even though they were still some two years ahead of grade level. A small but consistent advantage was demonstrated by children who began reading at age three, versus equally bright children who began at age five.

There are several recent and ongoing attempts to assess the effects of preschool intervention with culturally deprived children three to five years of age.[27,28,29,30,31,32] Although long-range data are not available from any of these projects yet, several tentative conclusions may be offered. First, relatively large gains in scores on a variety of intelligence tests are almost always obtained during the first year. Second, the spurt in development of intellectual functions which characterizes the first year is not always maintained in the second year. Third, the control groups tend to gain in I.Q. points once exposed to stimulating school experiences, and the differences between the experimental and control subjects are further reduced after the first few years of public school experience. Hechinger,[33] in a recent article, maintained that "the evidence...shows conclusively that early compensatory education is of very limited, short-term benefit unless there is consistent follow-up. Children's preschool gains in such experimentation have been shown to be spectacular as they entered first grade, but quick to erode within the next four years unless they were constantly reinforced."

What then can be made of the variety of studies which bear on the general question of the effects of early experience on later learning and the more specific questions concerning the stability of various types of early learning? At present, the only point on which we can be relatively confident is that prolonged deprivation of stimulation during the early years results in extensive and perhaps irreparable damage to the developing cognitive apparatus. We know very little about what constitute the optimum levels of stimulation for different children at different periods, and it seems clear, too, that we can say very little about the long-range stability of specific early education programs.

Hazards in Beginning Too Early

Many workers have expressed the strong conviction that the young child is too fragile a creature with whom to tamper, that he needs most the warmth of his mother's love and not intellectual stimulation. Others have maintained that the young child is not ready to learn responses more complex than those which he makes spontaneously, or that such responses would be acquired at enormous cost.

It is difficult to see how pleasant experiences, stimulating within reasonable limits, can be harmful to either mental health or cognitive development. If we are to attempt educational interventions at an early period in a child's life, we must gear these programs to his capacities and interests at that point. To afford to any individual the opportunity to develop fully his intellectual potential can hardly be construed as a disservice to him. As concerns the "readiness" problem, there is certainly ample evidence that a child cannot effectively learn higher order skills until fundamental lower order skills have been mastered--the problem of sequencing learning steps must be faced in every educational program.

Another problem, that of cultural discontinuity, and the possible alienation of children from their families because of the early inculcation of middle-class values, is a difficult one. Riessman,[34] along with others, points out that there are many good aspects of less affluent subcultures, and that early intervention programs which emphasize intellectual skills and achievement orientation run the risk of destroying many of the positive aspects of these subcultures. It is feared that this process will simply further deprive these children who will be placed in the position of having no subculture with which, and possibly no family with whom, they can completely identify. Close work with the families can, hopefully, help to resolve some of the problems, and it is possible that in the process some of the healthier aspects of the families can be strengthened. In fact, many children are growing up under grossly depriving and unhappy circumstances. A researcher can feel relative certainty that rational, carefully planned programs of stimulation and social interaction will, if successful, aid the health and growth of these children and carry only a negligible risk.

Hazards of Beginning Too Late

A number of recent investigators have suggested that the very early years are indeed crucial to the development of intellectual functions; they have suggested that opportunities for development missed during these early formative years cannot be made up easily later.[35,36,37]

Several studies have suggested that children raised in inadequate environments during their early years do not readily respond to more adequate circumstances later on.[38,39,40,41,42] On the other hand, studies of musical child prodigies[43] and of men of great genius[44] have pointed to extremely high levels of stimulation during the very early years.

Furthermore, there are data which tend to suggest that important motivational systems which are closely related to intellectual development are strongly affected by experiences early in life. Some longitudinal data, interestingly, show that the importance of early experiences for boys may be greater than that for girls.[15] Recent studies of what has been termed the achievement drive have begun to show us the importance of this internalized and generalized impetus to productive activity—to achieve some standard of excellence and to gain rewards in the pride of doing one's best. It seems clear that the achievement drive does differ among children, and,

moreover, that it has striking effects on their intellectual development.[15,45] It seems clear, too, that the degree of achievement motivation is related to the socio-cultural background of the child.[46,47,48] There are differences between children of different racial groups,[47,49,50,51] between children of different religious backgrounds,[52] and between children of different geographic and ethnic origins.[51] In each instance, it is clear that the group which has achieved more favorable social status has had higher motivation to achieve excellence.

What do we make of the points raised here concerning the possible hazards of beginning the educational process too late? Certainly, there is an accumulating body of data which hints at the crucial significance for the optimum development of intellectual functions of experiences during the first three years. It seems quite possible that learned patterns of responding during this early period provide important foundations for all later learning. "As the twig is bent, so grows the tree."

Optimal Timing of Specific Educational Programs

We are led to the conclusion that the very early years of childhood constitute the optimum time for beginning educational intervention. This conclusion helps us not at all, however, in the determination of the specific kinds of intervention; it is difficult to know just what patterns one should encourage[53,54,55] or how to go about doing it.[15,56] Our educated guess remains that high intelligence is fostered by warmth, support, and plentiful opportunity and reward for achievement and autonomy. If we are truly concerned about the plight of the culturally disadvantaged child, it seems that the time has come when we should venture actively into a realm which most educators and developmental psychologists have assiduously avoided until now—educational intervention in infancy and very early childhood.

M. Horner

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